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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,740	07/26/2005	Shin-ichi Kadowaki	2004_1498A	9921

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EXAMINER	
AGUSTIN, PETER VINCENT	

ART UNIT	PAPER NUMBER
2627	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,740	KADOWAKI ET AL.	
	Examiner	Art Unit	
	Peter Agustin	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-150* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *10-150* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This application is a national stage entry (371) of PCT/JP03/04209, filed April 2, 2003.

2. Claims 10-150 are currently pending.

Unity of Invention

3. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 10, 15 & 16, drawn to an optical storage medium inspection apparatus comprising: an optical pickup head that emits a light beam to an optical storage medium, detects a light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; a jitter measuring unit for measuring jitter in signals output from the optical pickup head; and an evaluation unit for determining from the measured jitter if the optical storage medium is good or defective; wherein the jitter measuring unit measures jitter in a train of 3T or longer marks or spaces from an optical storage medium to which digital information is recorded as a train of marks or spaces of length kT based on a period T and an integer k of two or more.

Group II, claim(s) 11-14, drawn to an optical storage medium inspection apparatus comprising: an optical pickup head that emits a light beam to an optical storage medium, detects a light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; a jitter measuring unit for measuring jitter in signals output from the optical pickup head; and an evaluation unit for determining from the measured jitter if the optical storage medium is good or defective; wherein the jitter measuring unit measures jitter from an optical storage medium to which digital information is recorded as a train of marks or spaces of length kT based on a period T and an integer k of two or more, but does not measure jitter in signals obtained from edges of marks or spaces of length 2T.

Group III, claim(s) 17 & 18, drawn to an optical storage medium inspection method for determining if an optical storage medium is good or defective, said method comprising: emitting a light beam from an optical pickup head to the optical storage medium to which digital information is recorded as a train of marks or spaces of length kT based on a period T and an integer k; receiving light reflected by a mark or space; measuring jitter in

signals based on the reflected light, but not measuring jitter in signals obtained from edges of the shortest marks or spaces; and determining from the measured jitter whether the optical storage medium is good or defective.

Group IV, claim(s) 19, 26-28 & 41-43, drawn to an optical disc drive apparatus comprising: an optical pickup head that emits a light beam to the optical storage medium, detects the light beam reflected from the optical storage medium having a recording layer for recording data, and outputs a signal based on the received reflected light; and a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using two threshold values, whereby digital data of length kT based on a period T is recorded as a mark and space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T mark is narrower than the width of a 3T or longer mark.

Group V, claim(s) 20, 85, 91, 97, 118, 127 & 136, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to an optical storage medium having a recording layer for recording data, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; and a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using maximum likelihood decoding, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T long digital data mark is narrower than the width of a digital data mark longer than 2T.

Group VI, claim(s) 21, 29, 30, 86, 92, 98, 119, 128 & 137, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to an optical storage medium having a first recording layer and a second recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light, wherein the first recording layer is a semi-transparent layer that passes part of the light incident thereon, wherein light passing the first recording layer reaches the second recording layer; and a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using two threshold values, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k is an integer of 2 or more.

Group VII, claim(s) 22, 87, 93, 99, 103, 105, 120, 129 & 138, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to the optical storage medium having a first recording layer and a second recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light, wherein the first recording layer is a semi-transparent layer that passes part of the light incident thereon, wherein light passing the first recording layer reaches the second recording layer; and a demodulation means that receives the signal

output from the optical pickup head and reproduces information recorded to the optical storage medium using maximum likelihood decoding, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k being an integer of 2 or more.

Group VIII, claim(s) 23, 88, 94, 100, 104, 106, 121, 130 & 139, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to an optical storage medium having a first recording layer and a second recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light, wherein the first recording layer is a semi-transparent layer that passes part of the light incident thereon, wherein light passing the first recording layer reaches the second recording layer; a clock generating means which receives signals output from the optical pickup head and extracting digital information recorded to the optical storage medium, generates a clock signal by treating as invalid signals obtained from the edges of 2T digital data marks or spaces; and a demodulation means that reproduces data recorded to the optical storage medium, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k is an integer of 2 or more.

Group IX, claim(s) 24, 89, 95, 101, 122, 131 & 140, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to an optical storage medium having a recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; a clock generating means which receives signals output from the optical pickup head and extracting digital information recorded to the optical storage medium, generates a clock signal by treating as invalid signals obtained from the edges of 2T digital data marks or spaces; and a demodulation means that reproduces data recorded to the optical storage medium, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T digital data mark is narrower than the width of a digital data mark longer than 2T.

Group X, claim(s) 25, 90, 96, 102, 123, 132 & 141, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to an optical storage medium having a recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; a clock generating means for receiving signals output from the optical pickup head and extracting digital information recorded to the optical storage medium; a demodulation means that reproduces data recorded to the optical storage medium; a TE signal generating means used for tracking control; and a tracking error signal generating means that generates a tracking error signal from change in the signals produced when the light beam strikes the edges of the mark or space sequence recorded to the optical storage medium, and generates the tracking error signal by invalidating signal change resulting from the light beam at the edges of 2T-long digital data marks or spaces, whereby digital data of length

kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more.

Group XI, claim(s) 31, 37-40, 124, 133 & 142, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to the optical storage medium having a recording layer for recording data, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; and a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium, whereby the optical disc drive adjusts the length of a 2T digital data mark so that the length detected from a pattern repeatedly recording 2T-long digital data marks and spaces goes to the same level as a threshold value suitable for reproducing information in a pattern repeatedly recording 3T or longer digital data marks and spaces, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, k is an integer of 2 or more, and the width of a 2T digital data mark is narrower than the width of a 3T or longer digital data mark.

Group XII, claim(s) 32, 34-36, 110, 112, 114, 116, 125, 134 & 143, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to the optical storage medium having a recording layer for recording data, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; and a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium, wherein the optical disc drive has an evaluation standard so that mark and space length is appropriate, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, and k is an integer of 2 or more, whereby the optical disc drive adjusts the length of digital data marks and spaces longer than 2T so that the length is appropriate relative to the evaluation standard.

Group XIII, claim(s) 33, 107-109, 111, 113, 115, 117, 126, 135 & 144, drawn to an optical disc drive comprising: an optical pickup head that emits a light beam to the optical storage medium having a recording layer for recording data, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; and a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium, wherein the optical disc drive records information using k of 3 or more, when recording to the optical storage medium that is normally recorded with k being an integer of 2 or more, wherein the optical disc drive adjusts the length of digital data marks and spaces of length 3T or more so that the length is appropriate relative to the evaluation standard, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer using an evaluation standard for adjusting mark and space length to an appropriate length.

Group XIV, claim(s) 44, drawn to an optical storage medium comprising: a first recording layer as recording layers for recording information, wherein the first recording layer is a read-only recording layer; and a second recording layer as recording layers for recording information, wherein the second recording layer is a recording layer enabling recording data only once, wherein the first recording layer is disposed closer to the light incidence side of the medium than the second recording layer, whereby information is recorded or reproduced by exposure to a light beam.

Group XV, claim(s) 45, drawn to an optical storage medium comprising: a first recording layer as recording layers for recording information, wherein the first recording layer is a read-only recording layer; and a second recording layer as recording layers for recording information, wherein the second recording layer is a recording layer enabling repeatedly recording and erasing data, wherein the first recording layer is disposed closer to the light incidence side of the medium than the second recording layer, whereby information is recorded or reproduced by exposure to a light beam.

Group XVI, claim(s) 46-84 & 145-150, drawn to an optical storage medium including multiple tracks formed concentrically or in a spiral for recording information using marks and spaces between the marks by emitting a light beam to the recording surface of the tracks, wherein a signal not including edges adjacent to the shortest marks and/or the shortest spaces denotes a first playback signal quality; and corresponding optical disk drives for reading and recording.

4. The inventions listed as Groups I-XVI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features, i.e., each group has the following special technical features not found in the other groups:

Group	Special Technical Feature
I	wherein the jitter measuring unit measures jitter in a train of 3T or longer marks or spaces from an optical storage medium to which digital information is recorded as a train of marks or spaces of length kT based on a period T and an integer k of two or more
II	wherein the jitter measuring unit measures jitter from an optical storage medium to which digital information is recorded as a train of marks or spaces of length kT based on a period T and an integer k of two or more, but does not measure jitter in signals obtained from edges of marks or spaces of length 2T
III	receiving light reflected by a mark or space; measuring jitter in signals based on the reflected light, but not measuring jitter in signals obtained from edges of the shortest marks or spaces
IV	a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using two threshold values, whereby digital data of length kT based on a

	period T is recorded as a mark and space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T mark is narrower than the width of a 3T or longer mark
V	demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using maximum likelihood decoding, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T long digital data mark is narrower than the width of a digital data mark longer than 2T
VI	a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using two threshold values, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k is an integer of 2 or more
VII	a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using maximum likelihood decoding, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k being an integer of 2 or more
VIII	a clock generating means which receives signals output from the optical pickup head and extracting digital information recorded to the optical storage medium, generates a clock signal by treating as invalid signals obtained from the edges of 2T digital data marks or spaces; and a demodulation means that reproduces data recorded to the optical storage medium, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k is an integer of 2 or more
IX	a clock generating means which receives signals output from the optical pickup head and extracting digital information recorded to the optical storage medium, generates a clock signal by treating as invalid signals obtained from the edges of 2T digital data marks or spaces; and a demodulation means that reproduces data recorded to the optical storage medium, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T digital data mark is narrower than the width of a digital data mark longer than 2T
X	a demodulation means that reproduces data recorded to the optical storage medium; a TE signal generating means used for tracking control; and a tracking error signal generating means that generates a tracking error signal from change in the signals produced when the light beam strikes the edges of the mark or space sequence recorded to the optical storage medium, and generates the tracking error signal by invalidating signal change resulting from the light beam at the edges of 2T-long digital data marks or spaces, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more

XI	whereby the optical disc drive adjusts the length of a 2T digital data mark so that the length detected from a pattern repeatedly recording 2T-long digital data marks and spaces goes to the same level as a threshold value suitable for reproducing information in a pattern repeatedly recording 3T or longer digital data marks and spaces, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, k is an integer of 2 or more, and the width of a 2T digital data mark is narrower than the width of a 3T or longer digital data mark
XII	wherein the optical disc drive has an evaluation standard so that mark and space length is appropriate, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, and k is an integer of 2 or more, whereby the optical disc drive adjusts the length of digital data marks and spaces longer than 2T so that the length is appropriate relative to the evaluation standard
XIII	wherein the optical disc drive records information using k of 3 or more, when recording to the optical storage medium that is normally recorded with k being an integer of 2 or more, wherein the optical disc drive adjusts the length of digital data marks and spaces of length 3T or more so that the length is appropriate relative to the evaluation standard, whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer using an evaluation standard for adjusting mark and space length to an appropriate length
XIV	wherein the first recording layer is a read-only recording layer; and a second recording layer as recording layers for recording information, wherein the second recording layer is a recording layer enabling recording data only once, wherein the first recording layer is disposed closer to the light incidence side of the medium than the second recording layer
XV	wherein the first recording layer is a read-only recording layer; and a second recording layer as recording layers for recording information, wherein the second recording layer is a recording layer enabling repeatedly recording and erasing data, wherein the first recording layer is disposed closer to the light incidence side of the medium than the second recording layer
XVI	wherein the optical storage medium has a first playback signal quality denoted by a signal not including edges adjacent to the shortest marks and/or the shortest spaces

5. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103 (a) of the other invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Agustin whose telephone number is 571-272-7567. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on 571-272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter Vincent Agustin/
Patent Examiner
Art Unit 2627